

Remarks

Claims 1-10 are pending. Claims 5 and 9 are amended to provide proper antecedent basis for certain expressions used or referred to therein. The remaining claims are unchanged.

The present invention is directed to a mobile device, and related methods. The mobile device is arranged to support, or capable of supporting, packet data services offered by wireless networks. The mobile device includes a memory, as well as a transceiver for exchanging packet data service authentication information with the wireless networks. The mobile device also includes a current blacklist provided in the memory. The current blacklist identifies wireless networks that do not provide packet data services to the mobile device. The current blacklist is based on previous packet data service authentication rejections, and is distinct from a voice services blacklist. The mobile device further includes a processor for updating the current blacklist in response to newly received packet data service authentication information.

As mentioned in paragraph [0005] in the Background section of the present application, in previous approaches even if a network indicates that it is capable of supporting packet data services, there is no guarantee that the mobile device will be allowed to make any data calls. The mobile device can only find out about such information after it makes a data call origination attempt. The present invention solves this problem by providing a current blacklist that identifies wireless network that do not *provide* packet data services to the mobile device, even if the wireless network is configured such that it is capable of providing such services.

The Examiner rejects claims 1 and 4-6 under 35 U.S.C. 103(a) as being unpatentable over Cooper (U.S. Patent Publication No. 2003/0129979, hereinafter Cooper) in view of Khare et al (U.S. Patent Publication No. 2002/0065067, hereinafter Khare).

It is respectfully submitted that both the Cooper reference suffers the same problem as discussed in the Background in paragraph [0005].

For the convenience of the Examiner, below are excerpts from Cooper, with emphasis added:

[0025] The mobile station 2 preferably includes a preferred roaming list (PRL) 10 and system avoidance data 12. The PRL 10 is stored in a nonvolatile memory of the mobile station 2 and includes a list of wireless communications systems and corresponding acquisition parameters that are used by the mobile station 2 during attempts to acquire and register with a wireless communications system. In a preferred embodiment, the PRL 10 is updated by the mobile station's wireless service provider and includes a list of wireless communications systems that are available to the mobile station 2 through its wireless service provider or other wireless service providers that have agreed to provide roaming services to the mobile station 2. The system avoidance data 12 is maintained by the mobile station 2 and includes a list of wireless communications systems and corresponding avoidance criterion. In a preferred embodiment, each wireless communications system listed in the avoidance data 12 is unusable and will be avoided by the mobile station 2 as long as the corresponding avoidance criterion is satisfied.

[0026] In operation, the mobile station 2 attempts to acquire a wireless communications system in accordance with a predetermined system acquisition procedure. The system acquisition procedure preferably includes selecting wireless communications systems in an order of desirability in the mobile station's current geographic region 4 from the PRL 10. As each system is selected, the mobile station 2 searches for the selected system in the avoidance data 12 and, if found, analyzes the corresponding avoidance criterion to determine whether the selected system is unusable. If the selected system is unusable, it will be avoided by the mobile station 2 and the next system is selected from the PRL 10 in accordance with the system acquisition procedure. If a usable system is selected, an attempt is made to acquire a corresponding signal and register with the selected system. After a successful acquisition/registration, the mobile station 2 may use the selected system for future wireless communications services. If the acquisition/registration attempt is unsuccessful, then the selected wireless communications system is added to the avoidance data 12 along with corresponding avoidance criterion.

As such, Cooper teaches the storage of avoidance data in a mobile station, to avoid unusable wireless communications systems during system acquisition. If a system is marked as usable, additional steps must be taken to determine whether the mobile device can register with the selected system. These steps require additional battery power and resources to acquire information on whether services are actually provided to, or available to, the mobile device, such as by way of a data services agreement. Therefore, it is clear that Cooper teaches the very type of system upon which the present invention seeks to improve.

The Examiner correctly points out that Cooper does not teach the blacklist identifying wireless networks that do not provide specifically packet data services to the mobile device. The Examiner then turns to Khare to provide that which Cooper lacks.

The Examiner states that Khare teaches a method which identifies wireless networks that do not provide packet data services and updates SID/NID database to set data availability indicator to indicate data is not available on the network. The Examiner then states that having a separate blacklist based on these data service rejections is simply a matter of design choice. We respectfully disagree.

As mentioned in paragraphs [0024]-[0026] of the present application, authentication steps generally comprise two levels of authentication, such as system access authentication and data authentication. This is similar to the earlier discussion of paragraph [0005], which outlines the distinction between a system or network being capable of supporting packet data services, and the mobile device being allowed to make any data calls. The Khare reference describes the first level of authentication, while the claimed invention describes the second level of authentication.

Paragraph [0041] of Khare is provided below for the convenience of the Examiner:

[0041] Base station 106 responds with a release order 404 on the paging channel. The release order specifies that a requested service option is not supported. The exact service option requested by wireless device 102 depends on the system configuration. For example, in a Quick Net Connect system, wireless device 102 may ask for service option 12. In a packet data system, wireless device 102 may ask for one of service options 7 or 15. Service option 7 provides Rate Set 1 packet data while service option 15 provides Rate Set 2 packet data. The receipt of the release order indicates that electronic data transmission services are not accessible. An indicator showing that data service connectivity is not available will be displayed to the user of wireless device 102 using one of the symbols/icons shown in FIGS. 2C and 2D.

Khare clearly describes call origination and call rejection with respect to **service options**. As is known to those of ordinary skill in the art, service options specify the service capabilities of a mobile or wireless system. Each service option is identified by a unique service option number, which may be used for standard services such as voice, data, or short message services, as well as for proprietary (non-standard) services. Some examples of service options are described in the paragraph above. As another example, service option 33 (SO33) in CDMA relates to packet data services. Many other service options relate to voice services, or to non-packet data services, such as circuit switched data services.

A communications system can be capable of offering packet data services, but such services may not be available to a particular mobile device, either due to a subscription not being available, or data roaming not being available between the data network and the mobile device's home network. As mentioned earlier, the claimed invention seeks to solve exactly this problem, by maintaining a packet data services blacklist to store information relating to networks that do not provide packet data services to the mobile device.

A service option rejection, as in Khare, means that the service is not supported, as clearly taught in paragraph [0041] thereof.

A packet data services rejection, as in the claimed invention, means, for example, that the user does not have a subscription to the service, or that a data roaming agreement is not available between the data network and the mobile device's home network.

A service option must already have been accepted in order to even be able to send packet data services authentication request. Therefore, the teachings of Khare relating to service option rejection are unrelated to a packet data services rejection as in the claimed invention, since they treat two different levels of authentication that have different purposes.

Paragraphs [0079] and [0083] of Khare refer to a primary data service option, and other data service options that can be configured. These data service options specify whether a communication system is able to offer data service connectivity (see para [0070] of Khare). They do not specify what is determined in the claimed invention, namely whether packet data services are provided to the mobile device, not whether the services are generally provided by the system.

The Examiner is also referred to Fig. 7 of Khare, in which step 727 indicates that if all rejections with reason indicate that the service option is not supported, that the database is updated to indicate that data is not available. Failure to support the service option is an indication that the communication system does not provide such service option, in general.

Khare cannot teach or suggest a packet data services blacklist based on previous packet data service authentication rejections, as its blacklist is based on service option rejections.

With respect to the Examiner's statement that having a separate blacklist based on service rejections is simply a matter of design choice, we disagree. The data service availability indication in Khare is provided as part of a database listing available SID/NID pairs. This describes the combination the voice services preferred roaming list with a service options blacklist, which teaches away from the claimed invention in which a packet data services blacklist is distinct from a voice services blacklist.

Moreover, using a packet data services blacklist, which is distinct from a voice services blacklist, as in the claimed invention, additional functionality is provided. For example, suppose wireless network X provides data services but not voice services to the mobile device. The claimed invention can easily handle such a scenario by listing wireless network X in the voice services blacklist and not in the packet data services blacklist. In contrast, the hybrid SID/NID database of Khare can only list the data service availability of a wireless network for which voice services are provided, since otherwise the wireless network would not be included in the database. Without providing a separate packet data services blacklist, any other approach is limited to the wireless network in question already being listed in either a preferred roaming list for voice services, or a voice services blacklist.

The Examiner goes on to state that at the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the teachings of Cooper with the teachings of Khare. The Examiner states that the motivation would have been to use a method identifying wireless networks that do not provide packet data services and to avoid those networks to allow a mobile device to acquire a wireless network more efficiently for data applications.

It is respectfully submitted that, in light of the above discussion of Cooper and Khare, there is no such motivation. Cooper and Khare both teach approaches using a blacklist of wireless networks that are unusable or do not have the capability to provide a requested service. None of these references teaches or suggests a distinction between the capability for a requested service, and actually providing the requested service to the mobile device. Neither Cooper nor Khare teaches or suggests a packet data services blacklist based on previous packet data

service authentication rejections and being distinct from a voice services blacklist, as provided in independent claims 1 and 4, and their dependent claims.

Therefore, claims 1 and 4-6 comply with 35 U.S.C. 103(a) and withdrawal of that rejection is requested.

The Examiner rejects claim 2 under 35 U.S.C. 103(a) as being unpatentable over Cooper (U.S. Patent Publication No. 2003/0129979) in view of Khare et al (U.S. Patent Publication No. 2002/0065067) and further in view of Daly (U.S. Patent No. 6122503). The Examiner also rejects claim 3 under 35 U.S.C. 103(a) as being unpatentable over Cooper (U.S. Patent Publication No. 2003/0129979) in view of Khare et al (U.S. Patent Publication No. 2002/0065067) and further in view of Yasushi et al. (U.S. Patent Publication No. 2002/0046285).

Cooper and Khare do not teach or suggest a packet data services blacklist based on previous packet data service authentication rejections and being distinct from a voice services blacklist. Neither Daly nor Yasushi provide what Cooper and Khare lack. By virtue of their dependence on claim 1, and in view of the arguments provided earlier, it is respectfully submitted that claims 2 and 3 comply with 35 U.S.C. 103(a) and withdrawal of that rejection is requested.

The Examiner further rejects claims 7 and 9 under 35 U.S.C. 103(a) as being unpatentable over Cooper (U.S. Patent Publication No. 2003/0129979) in view of Khare et al (U.S. Patent Publication No. 2002/0065067) and further in view of Yasushi et al. (U.S. Patent Publication No. 2002/0046285) and Daly (U.S. Patent No. 6122503). The Examiner also rejects claim 8 under 35 U.S.C. 103(a) as being unpatentable over Cooper (U.S. Patent Publication No. 2003/0129979) in view of Khare et al (U.S. Patent Publication No. 2002/0065067) and further in view of Marran (U.S. Patent No. 6549770).

Cooper and Khare do not teach or suggest a packet data services blacklist based on previous packet data service authentication rejections and being distinct from a voice services blacklist. Neither Daly, nor Yasushi, nor Marran provide what Cooper and Khare lack. By virtue of their dependence on claim 4, it is respectfully submitted that claims 7, 8 and 9 comply with 35 U.S.C. 103(a) and withdrawal of that rejection is requested.

Finally, the Examiner rejects claim 10 under 35 U.S.C. 103(a) as being unpatentable over Tiedemann et al. (U.S. Patent No. 5642398) in view of Daly (U.S. Patent No. 6122503).

The Examiner states that Tiedemann does not teach retrieving a server-stored packet data services blacklist identifying wireless networks that do not provide packet data services to the newly powered-up mobile device; and sending the server-stored packet data services blacklist from the server to the newly powered-up mobile device for reception by and storage on the mobile device. It is respectfully submitted that Daly does not teach what Tiedemann lacks. Similar to the earlier discussion of Cooper and Khare, Tiedemann does not relate to packet data service authentication, and do not teach a packet data services blacklist being distinct from a voice services blacklist. Therefore, it is respectfully submitted that claim 10 complies with 35 U.S.C. 103(a) and withdrawal of that rejection is requested.

The Application is now believed to be in condition for allowance, and early action in that respect is courteously solicited.

The Commissioner is hereby authorized to charge any additional fees, and credit any over payments to Deposit Account No. 501593, in the name of Borden Ladner Gervais LLP.

Respectfully submitted,

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